TITLE OF ABSTRACT- **A cross-sectional study of bone mineral density, biochemical parameters and lean muscle mass in chronic traumatic paraplegics**

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Objectives - To study the bone mineral density (BMD) and bone mineral parameters including bone turnover markers in males with chronic (1-5 years post injury) traumatic paraplegia and to compare it with age, sex and BMI matched peers from the general population. The secondary objective was to study the lean muscle mass in these subjects and assess its correlation with BMD.

Methods – Outcome tools were administered in males with chronic paraplegia to assess spasticity, independence in daily activities and mobility. BMD was measured at forearm, femoral neck and lumbar spine. Biochemical parameters and bone turnover makers were measured and analysed. Statistical analysis for continuous data was done with t-test, qualitative data with Fischer's exact test and co-relation was tested using Pearson's test.

Results – BMD was significantly lower (p-value 0.018) in the femoral neck and higher (p-value < 0.0001) at the forearm in individuals with spinal cord injury (SCI) as compared to controls. Spasticity and completeness of injury (AIS A) had a positive and negative effect respectively on maintaining BMD. Significantly increased levels of biomarkers (P1NP and C-telopeptide; p-value of 0.002 and < 0.0001 respectively) was seen in individuals with chronic traumatic paraplegia (n=43) as compared to controls (n=36). Sarcopenia was seen in majority (88.4%) of all subjects and it was significantly greater than in the controls (p-value <0.0001).

Conclusion – Significantly low bone mass was observed at femoral neck along with sarcopenia in chronic traumatic paraplegics as compared to controls. There was a significant correlation between lean muscle mass and BMD.